ISLAND COUNTY SHORELINE MASTER PROGRAM UPDATE

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GMA Item # 14104
For 3/22/2021 PC

TIMELINE AND PROCESS

General Process

- Bring topics and materials to the Technical Review Committee
- Then the Planning Commission
- Then the Board of Commissioners
- In that general order for discussion

Jointly Adopted Ordinance

- Island County and Ecology will hold a joint public comment period
- There will be a public comment hearing held during that period
- Island County will adopt locally and then send it on for Ecology to adopt

Adoption by:
June 2021

Questions and comments can be directed to: CompPlan@islandcountywa.gov

TASKS

STATE COMPLIANCE

State law, rules, and applicable updated guidance that may trigger the need for local SMP amendments

STAFF INITIATED UPDATES

Code changes implementing staff identified process improvements and language clarifications

SHORELINE MAPPING

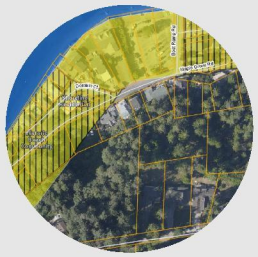
Ensuring shoreline jurisdiction is accurately mapped, particularly as it relates to coastal lagoons and brackish wetlands, and Historic Beach Communities

SEA LEVEL RISE

Guidance and best management practices for shoreline property owners and coastal communities

Questions and comments can be directed to: CompPlan@islandcountywa.gov

ITEMS FOR DISCUSSION TODAY



1. Mapping Changes Related to Historic Beach Communities

2. Sea Level Rise Monitoring Program

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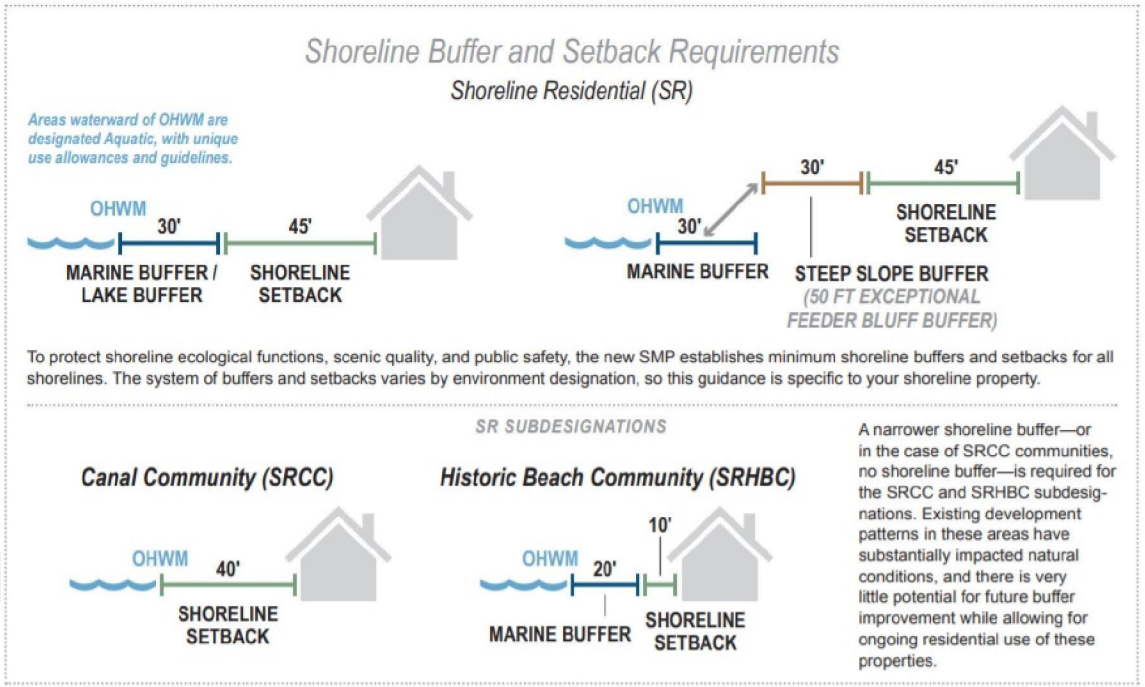
SHORELINE MAPPING

Ensuring shoreline jurisdiction is accurately mapped, particularly as it relates to Historic Beach Communities

SHORELINE ENVIRONMENT DESIGNATIONS (SEDs)

- Shoreline Jurisdiction extends inland 200 feet from the Ordinary High Water Mark (OHWM), and also on certain lakes and streams
- In Island County, Shoreline Jurisdiction is divided into six (6) different Shoreline Environment Designations (SED), and two (2) distinct overlays in the Shoreline Residential SED
- Each SED has different standards for marine buffers, building setbacks, steep slope buffers, and impervious surface ratios



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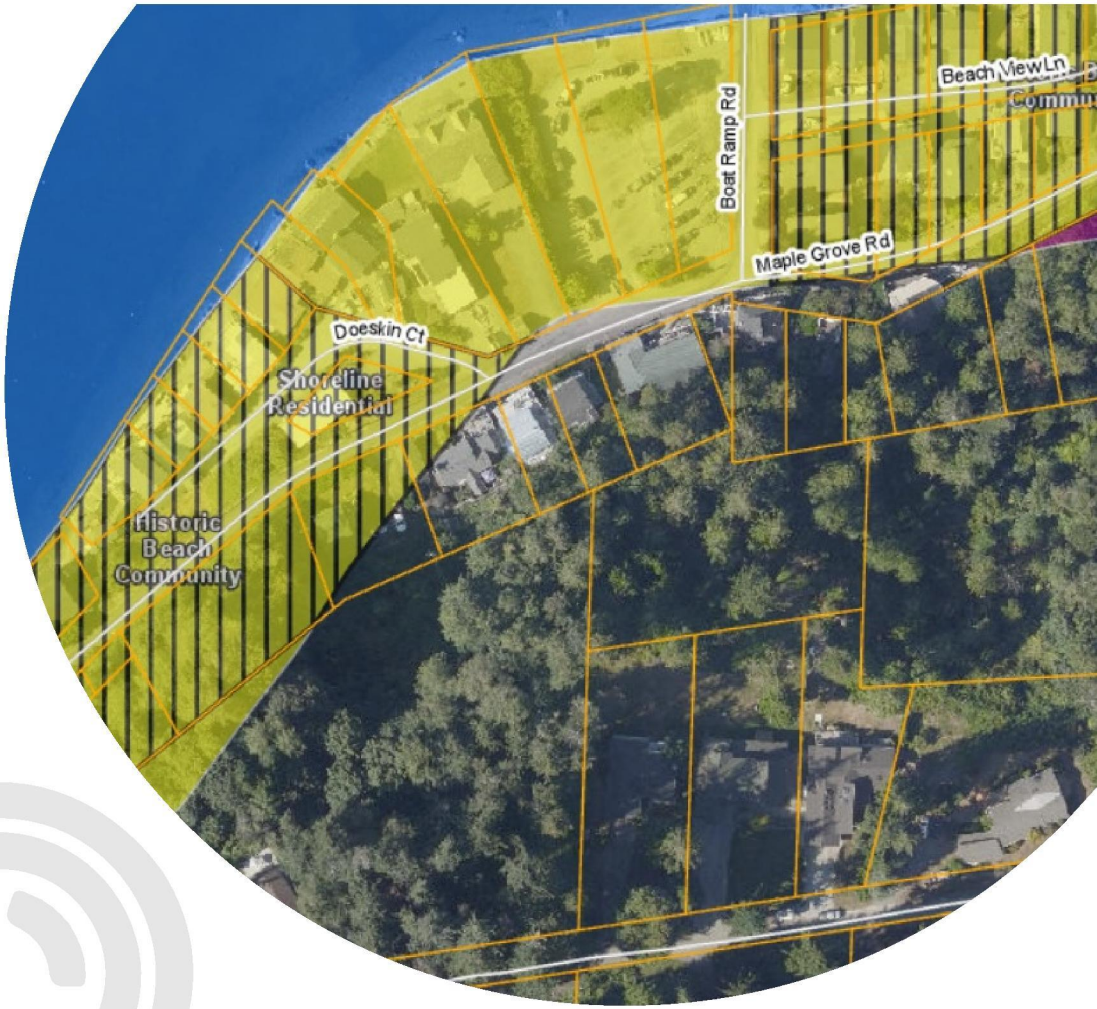
SHORELINE ENVIRONMENT DESIGNATIONS (SEDs)

- Shoreline Environment Designations (SEDs):
- Natural (N)
- Rural Conservancy (RC)
- Urban Conservancy (UC)
- Shoreline Residential (SR)
  - Shoreline Residential Canal Community (SRCC)
  - Shoreline Residential Historic Beach Community (SRHBC)
- High Intensity (HI)



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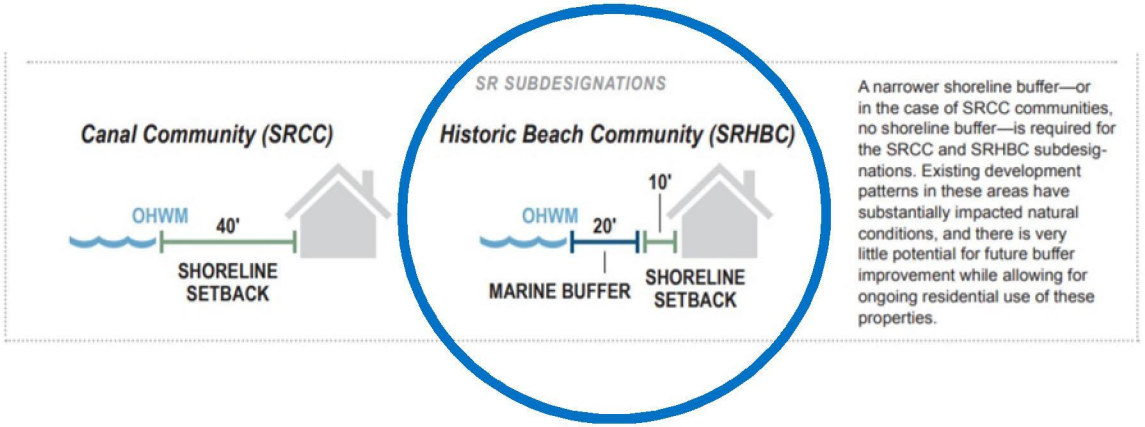
HISTORIC BEACH COMMUNITY SED

- Identifying and mapping County's shoreline that meet criteria of Historic Beach Community (HBC).
- Current version of SMP specifically classifies 25 plats as HBCs, but also states, "and other similarly situated plats meeting the definition of historic beach community set forth in section 17.05A.070."



The HBC definition outlined in ICC 17.05A.070 reads as follows:

Limited areas within the shoreline of Island County that have been platted in a dense pattern with small lots relative to other areas of the county. The existing marine waterfront lots are developed with residential structures constructed thirty (30) feet or less from the ordinary high water mark and the structures were established prior to enactment of the Shoreline Management Act

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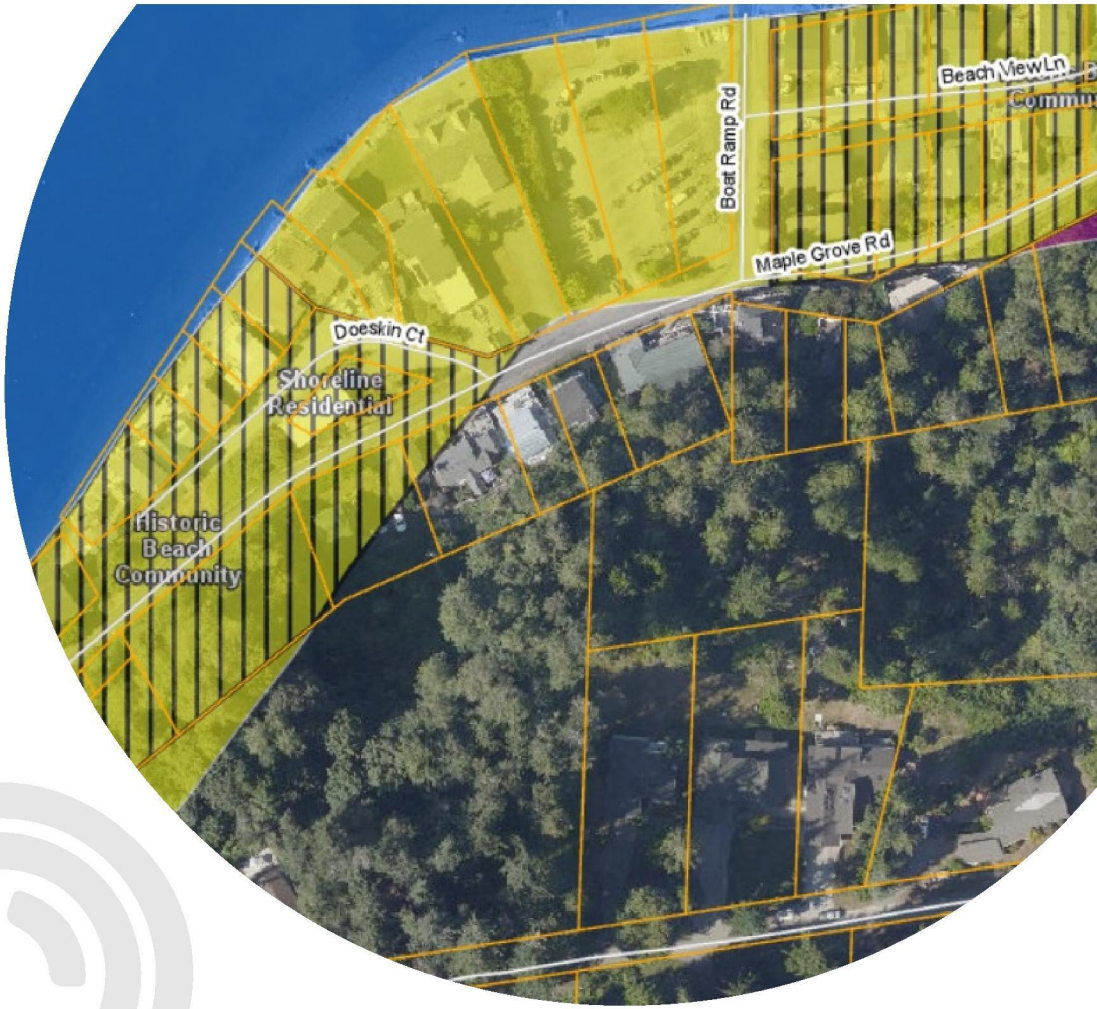
MAPPING HBCs

- Many other areas meet criteria outlined in definition, resulting in individual determinations
- Staff's goal: identify and map all areas of shoreline that meet criteria of HBC and eliminate individual determinations
- Specific criteria to identify and map the HBC's:
  - 30-foot average building setback from the Ordinary High Water Mark (OHWM),
  - Plats finalized prior to the 1972 State Shoreline Management Act (SMA), or parcels developed prior to the 1972 SMA
  - Groups consisting at a minimum of five contiguous parcels, and
  - Areas that are currently mapped as Shoreline Residential.



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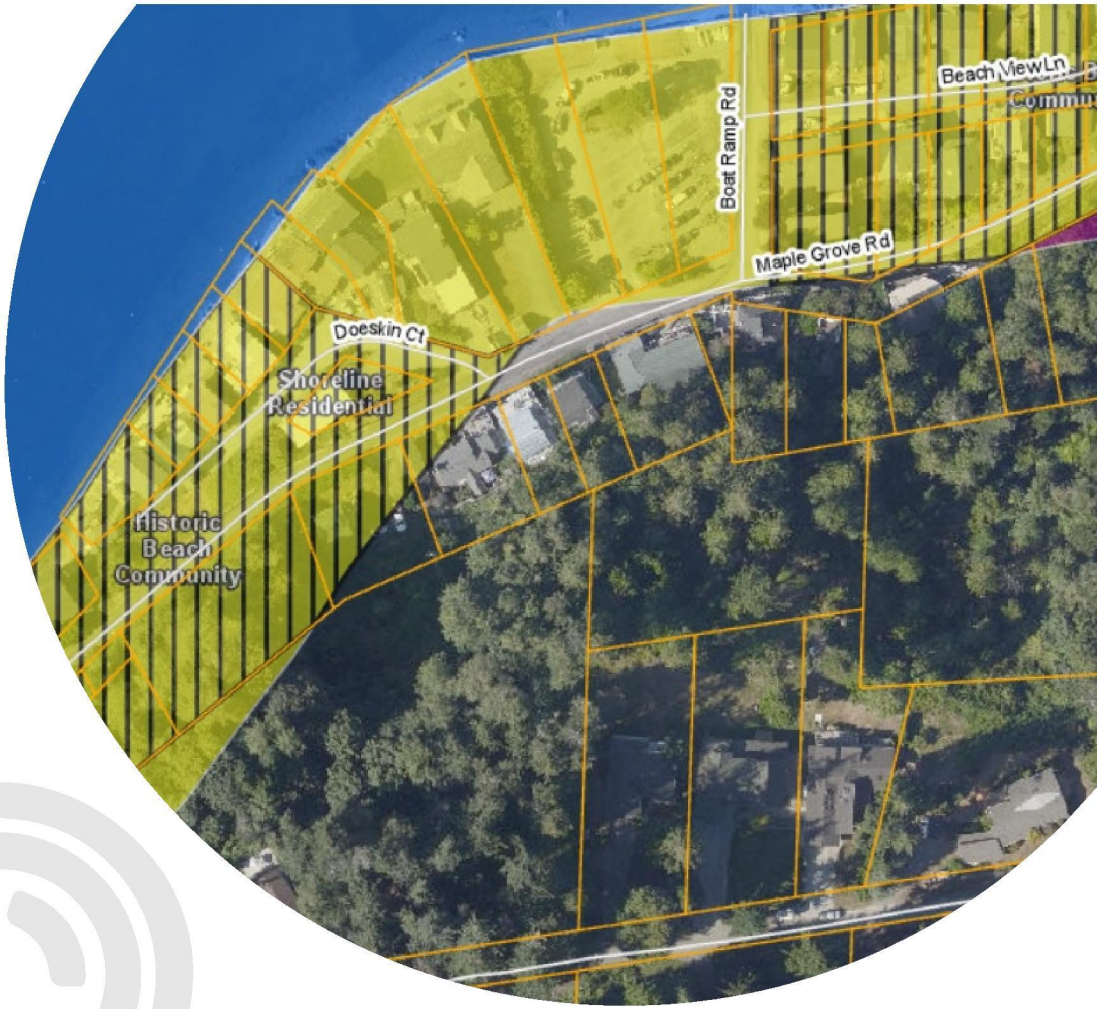
RESULTS

Currently Mapped HBCs (Parcels)		
Whidbey	**Camano**	**Total**
305	308	613
49.76%	50.24%	100%

Proposed Mapped HBCs (Parcels)		
Whidbey	**Camano**	**Total**
2,460	1,293	3,753
65.55%	34.45%	100%

Increase (Parcels)		
Whidbey	**Camano**	**Total**
+ 2,155	+ 985	+ 3,140



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SEA LEVEL RISE MONITORING

Monitor sea level rise to assess rates of changes and impacts and establish timeframes for reevaluating planning approach

CALIBRATED APPROACH FOR ISLAND COUNTY

- More private assets in the shoreline than public assets
  - Information would be the most important first step
  - Provide strategies and guidance (Best Management Practices) tailored to specific types of vulnerable areas
  - Limited resources requires a certain degree of private initiative and community-based planning
- Don’t need to pick a projection
  - Work with a range of strategies that can be activated based on observed and measured impacts
- Monitor the changes over time

HISTORIC BEACH COMMUNITIES

- Dense pattern of small lots
- Residential structures within 30ft or less of the Ordinary High Water Mark
- Platted and constructed prior to the Shoreline Management Act

CANAL COMMUNITIES

- Spits formed to create a lagoon
- Resulting lagoon then dredged into canals
- Small lots, very close to the ordinary high water mark
- Typically include individual docks
- Also have many communities which did not dredge canals out of a lagoon but did develop along the outer spits

COASTAL BLUFF COMMUNITIES

- Development could be at the top of bluff or the base
- Feeder bluffs naturally erode and deliver sand to the beach

PLANNING FOR SEA LEVEL RISE

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Provide information and cultivate greater preparedness for the impacts of sea-level rise to Island County's Historic Beach, Canal, and Feeder Bluff communities.

PROVIDING GUIDANCE TO COMMUNITIES

Develop a framework for community-based coastal resiliency planning

MONITORING

Create a programmatic framework for monitoring the effects of sea level rise as it relates to Island County's Historic Beach, Canal, and Feeder Bluff communities.

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Best management practices

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Provide a framework for property owners to:

- identify vulnerabilities
- determine appropriate mitigation
- manage risk

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Property owners could choose from a toolbox of adaptation options that include strategies for:

- Protection
- Accommodation
- Retreat

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Would address private assets such as:

- Residential structures
- Septic tanks and drain fields
- Protective structures and devices
- Soft shore armoring
- Private wells
- Private drives

PROVIDING GUIDANCE TO INDIVIDUAL PROPERTY OWNERS

Property owners would be able to use the sea level rise projections from the WA Coastal Resiliency Project which are based on probabilities, in conjunction with the BMPs to determine their risk tolerance and strategies for their specific property and investments

Table 2 RCP 4.5 Sea-level rise projections averaged for Island County in feet based on Miller et al projections.

	Very Likely 95% probability)	Likely 50% probability)	Unlikely 1% probability)	*Mid-Range 17 - 83% probability*
2050	0.3	0.7	1.4	*0.5 - 1.0*
2070	0.5	1.1	2.4	*0.7 - 1.5*
2100	0.7	1.8	4.4	*1.1-2.5*

Table 3 RCP 8.5 Sea-level Rise Projections Averaged for Island County in Feet based on Miller et al projections

	Very Likely 95% probability)	Likely 50% probability)	Unlikely 1% probability)	*Mid-Range 17 - 83% probability*
2050	0.3	0.8	1.5	*0.5 - 1.0*
2070	0.6	1.3	2.6	*0.9 - 1.7*
2100	1.0	2.2	5.0	*1.5 - 3.0*

	Near Term Present- 2050	Mid Term 2050-2070	Long Term 2070-2100
High Probability	Protect	Protect Accommodate	Accommodate
Medium Probability	Protect Accommodate	Accommodate	Accommodate Retreat
Low Probability	Protect Accommodate	Accommodate Retreat	Retreat

PROVIDING GUIDANCE TO COASTAL COMMUNITIES

Framework for Community-Based Sea Level Rise Planning

PROVIDING GUIDANCE FOR COASTAL COMMUNITIES

Development of a guidebook for community-based long term coastal resiliency planning, to assist communities in preparing for the effects of sea level rise

Program components:

- Identification of vulnerable assets
- Community based strategies for improving resiliency and preparing for the impacts of sea-level rise, examples might include:
  - Community drainfield
  - Property acquisition and restoration
  - Beach nourishment
  - Dike repairs
  - Soft shore projects
- Monitoring, thresholds for action, and lead times
- Financing options

MONITORING SEA LEVEL RISE

On a Countywide Scale

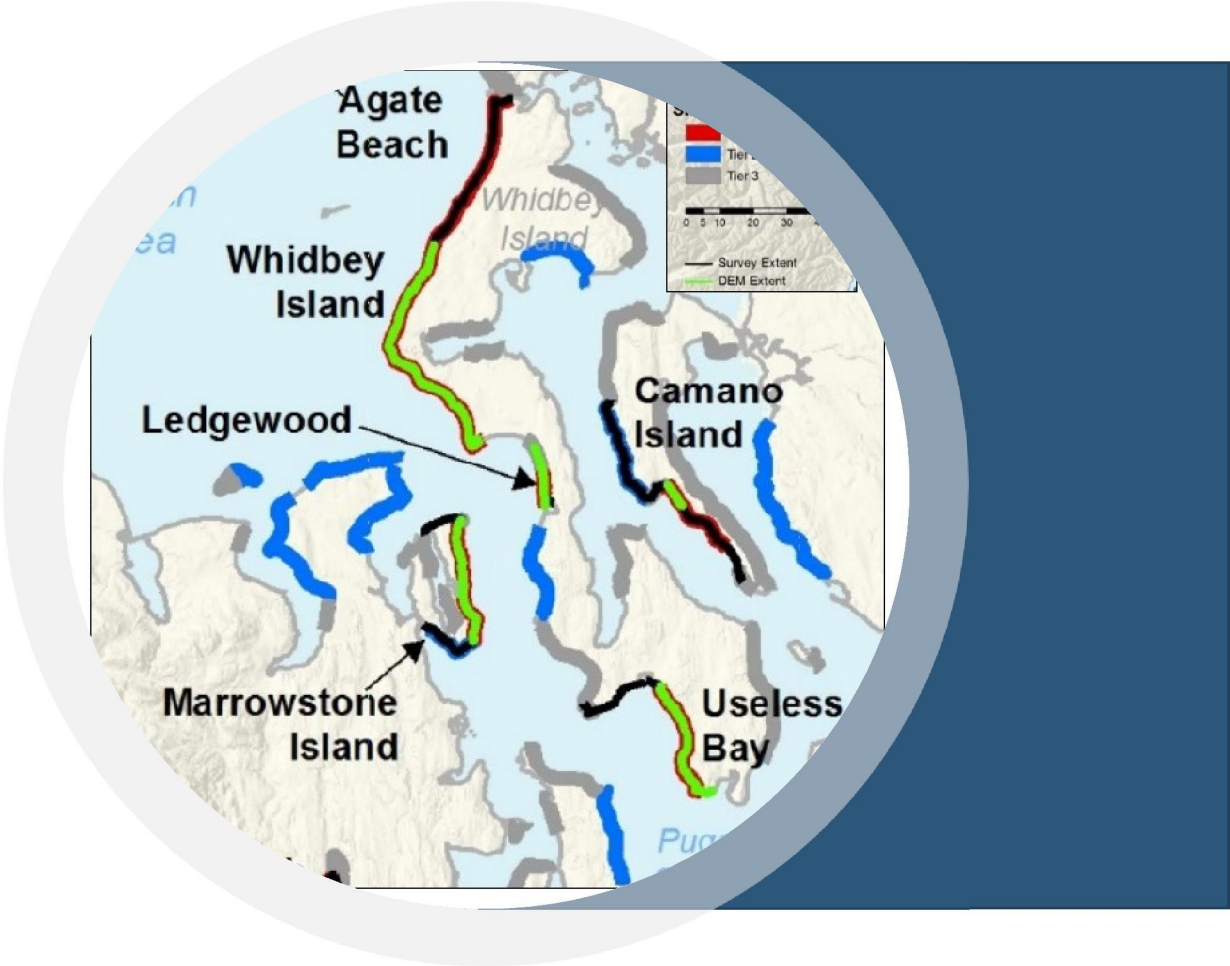
MONTIORING GOALS

- Provide for flexible, adaptive-management approach
- Track areas most impacted by sea level rise
- Track how quickly impacts from sea level rise are occurring
- Develop time frames and/or thresholds for reevaluating approach

SEVEN RECOMMENDED DATA SOURCES

1. Washington Department of Ecology (DOE)
   - DOE Coastal Monitoring and Analysis Program (CMAP) conducted boat-based LiDAR surveys over 135 miles of shoreline between 2013 and 2018
   - Funding awarded to repeat in 2019, data may not be available until 2021.

2. Washington Department of Fish and Wildlife
   - Hannah Faulkner, nearshore biologist with WDFW, monitors several armor removal sites in Island County.



SEVEN RECOMMENDED DATA SOURCES

3. NOAA National Geodetic Survey
   - National Ocean and Atmospheric Administration's (NOAA) National Geodetic Survey Data Explorer includes locations of monuments with known vertical and horizontal coordinates

4. Long-Term Bluff Recession Rates in Puget Sound
   - Coastal Geological Services measured and compiled long-term bluff recession using two different methods; historical aerial photographs in GIS and NGS monuments

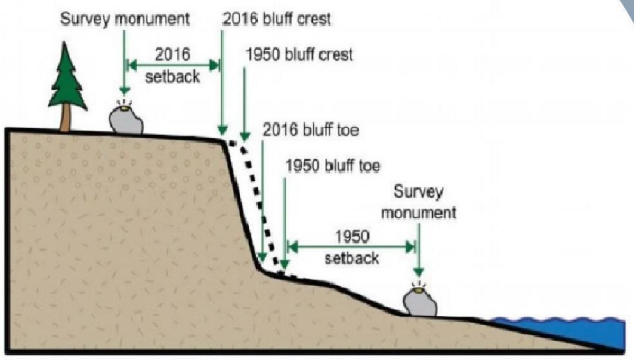


Figure 2. Bluff Profile Depicting Bluff Features and Survey Monuments Used Measure Change Rates.

SEVEN RECOMMENDED DATA SOURCES

5. Diking District No. 1 Sunlight Beach Dike Monitoring
   - Aerial Whidbey monitoring the Sunlight Beach Dike, the mouth of Deer Lagoon, and a large area labeled “Henny Spit and Lagoon” for Diking District No. 1.

6. Canal Communities Dredge Permit Monitoring
   - Dredging within Canal Communities required to maintain adequate depths for boat moorage and navigation every 5–10 years.
   - Dredge design and permitting process includes bathymetric mapping and comparison of past elevations

SEVEN RECOMMENDED DATA SOURCES

7. Sound Water Stewards of Island County
   - Sound Water Stewards conduct intertidal monitoring of 12 beaches on Camano and Whidbey Islands, for a total of 24 monitoring locations
   - These data have been collected since 2003, all with the help of local volunteers.

Table 3. Beaches on Whidbey and Camano Islands Monitored by Sound Water Stewards.

Whidbey Island	Camano Island
Ala Spit	Utsalady
Clinton	English Boom
Cornet Bay	Iverson Spit
Coupeville Town Park	Cavalero
Double Bluff	Tillicum
Lagoon Point	Pebble Beach
Langley	Mabana (road)
Ledgewood	Elger Bay
Partridge Point	Camano Island State Park
Possession Beach	Cama Beach State Park
Trail's End Road (Greenbank)	Onamac Point
Hastey Lake Road/County Park	Madrona Beach

DATA SOURCES RECOMMENDED FOR EACH AREA OF FOCUS

Table 5. Monitoring Targets, Areas Mapped, and Data for Canal Communities.

Monitoring Target	Areas Mapped	Data Source	Data Format	Data to Compare
Canal Communities	Lagoon Point, Sandy Hook, Mariner's Cove	Puget Sound LiDAR consortium	LiDAR data, 0.5-meter DEMs	Compare tidal prism area over time. Extract profiles in problem locations and compare.
		HOAs' dredge design and permit records	Sedimentation rates, profiles, elevations	Explore changing locations of different shoreline proxies (e.g., MSL, MHHW, EHW)
		Island County Emergency Management Department	FEMA claims	Interpreted water levels from claims from different years

Table 6. Monitoring Targets, Areas Mapped, and Data for Coastal Bluffs.

Monitoring Target	Areas Mapped	Data Source	Data Format	Data to Compare
West Whidbey Bluffs	West Beach to Point Partridge	WDOE, Weiner et al. (2015, 2018)	LiDAR and 0.5-meter DEMs	Compare profiles or proxies between 2015 and 2018 WDOE DEMS with 2006 LiDAR data.
South Whidbey Bluffs	Ledgewood and Useless Bay	WDOE, Weiner et al. (2015, 2018)	LiDAR and 0.5-meter DEMs	Compare profiles or proxies from WDOE DEMs with 2006 LiDAR.
East Whidbey Bluffs	Maylor Point, Penn Cove, Rocky Point	NGS Monuments	Background bluff recession rates	Repeat monument measurements in field, compare to historical rates by CGS.
East Whidbey Bluffs	Maylor Point, Oak Harbor and WCLT's Waterman Property	WDFW Before and After armor removal	DEMs	Compare with future monitoring data only.
West Camano Bluffs	Sunset Drive, Northwest Camano	NGS monument benchmark sheets, reference notes	Background bluff recession rates	Measure and compare monument and references locations.
	South of Elger Bay, Southwest Camano	WDOE, Weiner et al. (2015, 2018)	LiDAR and 0.5-meter DEMs	Compare profiles or proxies with 2006 LiDAR.
East Camano Bluffs	Barnum Point, Bluffs off Highland Drive	GIS points with historical bluff recession rates	Background bluff recession rates	Repeat monument measurements in field, compare to historical rates by CGS.

Table 7. Monitoring Targets, Areas Mapped, and Data for Historic Beach Communities.

Monitoring Target	Areas Mapped	Data Source	Data Format	Data to compare
West Whidbey HBCs	Swantown, Hastie Lake County Park, West Beach County Park	WDOE, Weiner et al. (2015, 2018)	LiDAR and 0.5-meter DEMs	Compare profiles or proxies with 2006 LiDAR
Southwest Whidbey HBCs	Useless Bay, Sunlight Shores	WDOE DEMs, Aerial Whidbey DEMs, LiDAR	0.5-m DEMs	Compare profiles or proxies from recent DEMs with 2006 LiDAR
East Whidbey HBCs	Langley Clinton, Trail's End Road (nearr Greenbank), Possession Beach	Sound Water Stewards	Beach Profiles	Compare profiles or proxies with 2006 LiDAR
West Camano Island	Utsalady, Madrona Beach, Onemac Point, Mabana Road, Pebble Beach	Sound Water Stewards	Beach Profiles	Compare profiles or proxies with 2006 LiDAR
East Camano Island	Tillicum	Sound Water Stewards	Beach Profiles	Compare profiles or proxies with 2006 LiDAR

CONSIDERATIONS

Critical decisions relevant to final monitoring approach:

- If and how much funding available to support monitoring,
- Spatial extent of monitoring program
- If effort would be supported and completed by Island County staff, or via a consultant.

Much of monitoring data collection and analysis could be conducted by Island County professionals.

Collaborations between data scientists and GIS professionals in the Departments of Public Works and Natural Resources could benefit this program.

THANK YOU!

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